
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

Gordon P. Eaton, Director

Reston, VA 20192

For information, contact:

Peter H. Kuck, Commodity Specialist

Telephone: (703) 648-4965, Fax: (703) 648-7757

E-mail: pkuck@usgs.gov

Barbara J. McNair (Data), (703) 648-7952

MINES-DATA: (703) 648-7799

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

NICKEL IN FEBRUARY 1997

Reported domestic nickel consumption in February, on a daily average basis, was 7% less than that of January, according to the U.S. Geological Survey. Daily usage by the stainless steel industry was down 16% from the January average of 133 metric tons (t). Consumption of elemental nickel to make nickel-base corrosion resistant alloys decreased about 3%. However, demand for elemental nickel by the brass industry was up significantly. Sales to plating companies averaged 42 t per day, slightly more than in January. Percentages reported in this paragraph may not be verifiable owing to the concealment of company proprietary data. Trade data for February will appear in a subsequent issue.

Inco Alloys International to merge with Haynes

On June 11, 1997, Inco Limited announced that it had agreed to sell its alloy manufacturing division to Blackstone Capital Partners II Merchant Banking Fund L.P. for approximately \$410 million, excluding fees and expenses (Inco Limited, 1997). The alloy manufacturing division—Inco Alloys International (IAI)—is one of the world's leading developers and producers of wrought nickel-base alloys. IAI has been supplying superalloys to the aerospace industry for more than 40 years from its plant in Huntington, West Virginia. The plant is equipped with facilities for electric arc and air induction melting, vacuum induction melting, electroslag remelting, vacuum arc remelting, argon-oxygen decarburization refining, and mechanical alloying. The division also has operations in Hereford, England; Burnaugh, Kentucky; Elkhart, Indiana; and Newton, North Carolina. The Newton plant specializes in welding products. In 1995, IAI acquired a majority ownership of a plant in Epone, France, that manufactures electrical resistance alloy wire and ribbon.

IAI products are bought by a broad spectrum of industry, in addition to aircraft engine manufacturers, and have a myriad of

applications, including those in chemical processing equipment, food handling equipment, turbines and related power generation machinery, flue-gas scrubbers, downhole tubing for oil & gas wells, petrochemical storage tanks, and piping systems of all types. *Incoloy*, *Inconel*, *Monel*, and *Nimonic* are well known trademarks for families of high-nickel alloys produced by IAI.

Blackstone, a merchant bank based in New York, owns approximately 80% of Haynes International, Inc. Haynes, an Indiana-based company, produces *Hastelloy X*, *Waspaloy*, and a variety of other nickel-base high-performance alloys. Blackstone is planning to combine the operations of Haynes and IAI, creating one of the largest producers of superalloys in the world (Coplan, 1997; Sacco, 1997). The new company would face a number of competitors, including: Allegheny Teledyne Inc., Cannon-Muskegon Corp., Carpenter Technology Corp., Howmet Corp., Special Metals Corp., and VDM Technologies Corp.

Approval still must be obtained from regulatory authorities and antitrust examiners (Ryan's Notes, 1997). The sale is expected to close this fall and give Inco an after-tax gain of about \$85 million. Part of the money would be applied to the debt incurred in acquiring the Voisey's Bay nickel-copper-cobalt deposit. (See *Nickel in June 1996*.) In 1996, IAI had net sales of \$645 million and earnings of \$36 million.

Correction

Nickel in January 1997

The processing capacity of Inco's proposed smelter and refinery at Argentia, Newfoundland, was incorrectly stated on page 2.

"When fully operational, the [Argentia] complex will be able to process **816,000** t per year of sulfide concentrate and produce 122,000 t per year of refined nickel."

References Cited

Coplan, Stephen, 1997, Nickel alloy buyout sealed— Blackstone to merge Inco Alloys with Haynes: American Metal Market, v. 105, no. 113, June 12, p. 1.
Inco Limited, 1997, Inco Limited announces agreement to sell its alloys business to an affiliate of Blackstone Capital Partners: Toronto, Ontario, Inco

Limited press release no.10/97, June 11, 2 p.
Ryan's Notes, 1997, Inco sells alloys unit to Haynes: Ryan's Notes, v. 3, no. 24, June 16, p. 2.
Sacco, John E., 1997, Haynes exec—Inco's processing is a plus: American Metal Market, v. 105, no. 114, June 13, p. 16.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
1996:					
February	7,010	1,230	268	8,510	17,200
March	6,760	1,480	318	8,560	25,800
April	6,620	1,490	249	8,360	34,200
May	7,060	1,470	285	8,820	43,000
June	6,710	1,530	236	8,480	51,500
July	6,480	1,160	131 r/	7,770	59,200
August	6,290	1,450	140 r/	7,880	67,100
September	6,030	1,540	178	7,750	74,900
October	6,670	1,750	320	8,740	83,600
November	5,610	1,340	365	7,320	90,900
December	5,630	1,660	181	7,470	98,400
January-December	77,800	17,600	2,980	98,400	98,400
1997:					
January	6,810	2,000	101	8,900	8,900
February:					
Steel:					
Stainless and heat resisting	1,650	1,420	W	3,070	7,200
Alloy (excludes stainless)	743	W	W	743	1,450
Superalloys	434	--	W	434	1,350
Copper-nickel alloys	W	W	--	W	W
Electrical, magnetic, and expansion alloys	W	--	--	W	W
Other nickel & nickel alloys	W	W	W	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	1,170	--	W	1,170	2,460
Chemical and chemical uses	W	--	W	W	W
Other uses	1,580	88	78	1,750	3,620
Total reported	5,580 2/	1,510	78	7,170	16,100
Total all companies (calc) 3/	XX	XX	XX	10,400	23,400
1997: January-February	12,400	3,510	178	16,100	XX
1996: January-February	13,900	2,730	576	17,200	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of consumption, 4,630 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (68%) to apparent primary consumption for 1994.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
1996:				
February	5,060	292	95	5,450
March	4,610	207	69	4,890
April	4,430	131	81	4,640
May	4,060	342	92	4,490
June	3,630	337	91	4,060
July	3,440	516	70	4,030
August	3,350	429	77	3,860
September	2,890	276	82	3,250
October	2,740	473	80	3,290
November	6,190	636	64	6,890
December	5,000 r/	1,540	77	6,620
1997:				
January:	4,420	642	72	5,130
February:				
Steel (stainless, heat resisting and alloy)	2,170	228	(3/)	2,400
Nonferrous alloys 4/	1,550	(3/)	(3/)	1,550
Foundry (cast irons)	(3/)	--	--	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	169	--	130	299
Total	3,880	228	130	4,240

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in "Chemicals and unspecified uses" of "Oxide-sinter, salts, and other forms" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
1996:						
February	3,380	1,120	4,500	4,190	114	4,310
March	4,650	965	5,620	3,970	91	4,060
April	3,910	815	4,730	3,730	90	3,820
May	4,100	783	4,880	3,100	100	3,200
June	3,770	625	4,400	3,040	100	3,140
July	3,670	680	4,350	3,290	97	3,390
August	2,860	1,070	3,930	3,350	98	3,440
September	3,490	861	4,350	3,090	109	3,200
October	3,600	762	4,360	3,340	107	3,440
November	3,250	775	4,020	3,630	89	3,720
December	3,310	646	3,950	3,520	88	3,610
January-December	43,400	9,860	53,300	XX	XX	XX
1997:						
January	4,720	796	5,510	3,160	109	3,270
February	3,750	757	4,500	3,320	107	3,420
1997: January-February	8,460	1,550	10,000	XX	XX	XX
1996: January-February	6,820	1,880	8,690	XX	XX	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
1996:										
January	11,000	1,030	887	46	333	313	377	14,000	14,000	51
February	9,970	709	1,540	14	309	312	419	13,300	27,200	55
March	9,130	917	2,130	39	385	369	241	13,200	40,400	60
April	11,300	760	980	21	344	313	187	13,900	54,300	52
May	11,000	945	2,020	91	411	319	219	15,000	69,400	72
June	7,750	927	1,430	9	343	289	254	11,000	80,400	43
July	7,230	684	1,470	18	238	274	216	10,100	90,500	42
August	9,250	835	1,120	14	235	319	265	12,000	103,000	44
September	9,390	629	884	33	416	322	234	11,900	114,000	52
October	7,850	779	1,050	60	581	373	311	11,000	125,000	67
November	9,820	670	1,520	99	328	308	290	13,000	138,000	38
December	9,180	815	969	21	351	275	251	11,900	150,000	61
January-December	113,000	9,700	16,000	463	4,270	3,790	3,270	150,000	XX	637
1997:										
January:										
Australia	772	180	--	20	--	--	--	972	972	--
Canada	4,740	651	--	91	82	121	61	5,740	5,740	1
Colombia	--	--	102	--	--	--	--	102	102	--
Dominican Republic	--	--	769	--	8	--	--	777	777	--
Finland	240	39	--	--	--	--	58	337	337	--
France	98	--	--	--	83	--	13	194	194	24
Germany	19	(4/)	--	--	28	--	24	71	71	27
Japan	--	66	--	--	12	4	26	108	108	3
New Caledonia	--	--	300	--	--	--	--	300	300	--
Russia	1,570	12	--	--	--	--	4	1,580	1,580	--
South Africa	111	--	6	--	--	--	--	117	117	--
United Kingdom	18	4	--	--	96	--	6	124	124	1
Zimbabwe	56	--	--	--	--	--	--	56	56	--
Other	20	2	--	--	55	138	73	288	288	1
Total	7,640	954	1,180	111	364	263	265	10,800	10,800	57

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
1996:										
January	7	69	429	262	714	1,570	158	3,210	3,210	22
February	72	53	60	78	903	1,430	305	2,900	6,110	23
March	80	92	181	271	859	1,140	261	2,880	8,990	52
April	149	63	119	134	965	2,760	389	4,570	13,600	27
May	82	171	220	331	782	1,520	519	3,620	17,200	31
June	79	142	73	616	800	1,530	295	3,530	20,700	19
July	7	50	650	480	778	2,650	364	4,980	25,700	30
August	44	97	299	348	703	2,200	424	4,120	29,800	64
September	6	80	179	359	1,210	2,230	292	4,360	34,200	27
October	20	79	359	420	1,280	2,270	185	4,620	38,800	63
November	19	88	324	517	918	1,610	197	3,670	42,500	59
December	21	75	433	393	960	1,850	551	4,280	46,800	21
January-December	586	1,060	3,330	4,210	10,900	22,800	3,940	46,800	XX	439
1997:										
January										
Belgium	--	--	--	--	--	--	78	78	78	1
Canada	--	37	--	511	429	187	53	1,220	1,220	2
Germany	--	2	--	--	19	5	13	39	39	(4/)
India	--	(4/)	240	--	9	4	--	253	253	--
Italy	--	1	--	--	--	(4/)	--	1	1	--
Japan	--	3	60	1	97	197	7	365	365	2
Korea, Republic of	--	4	--	(4/)	--	673	3	680	680	--
Mexico	20	4	2	--	--	1	130	157	157	13
Netherlands	--	--	--	--	7	4	--	11	11	--
Spain	--	--	--	--	--	374	--	374	374	--
Sweden	--	1	--	--	272	--	--	273	273	--
Taiwan	--	10	18	--	--	196	21	245	245	1
United Kingdom	--	(4/)	2	--	18	6	4	30	30	3
Other	--	10	120	1	11	89	146	377	377	34
Total	20	72	442	513	862	1,740	455	4,100	4,100	56

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date 2/
1996:									
January	114	212	154	116	(3/)	98	43	737 r/	737
February	259	152	75	92	(3/)	65	61	704	1,440
March	300	176	151	123	(3/)	107	58	915 r/	2,360
April	561	180	158	132	(3/)	95	20	1,150	3,510
May	178	249	175	170	(3/)	67	18	857 r/	4,360
June	221	242	116	157	(3/)	71	54	861	5,220
July	188	117	195	90	(3/)	44	107	741 r/	5,970
August	91	219	97	187	(3/)	49	615	1,260	7,230
September	117	70	144	133	(3/)	50	59	573	7,800
October	249	151	120	90	(3/)	72	60	742 r/	8,540
November	349	161	168	81	(3/)	66	29	854	9,390
December	151	178	256	145	(3/)	48	64	843	10,200
January-December	2,780	2,110	1,810	1,520	2	832	1,190	10,200	XX
1997:									
January:									
Australia	110	3	--	--	--	--	--	113	113
Belgium	5	--	--	--	--	--	--	5	5
Canada	30	1	7	(3/)	--	2	4	44	44
France	--	9	51	6	--	--	1	67	67
Germany	--	44	101	88	--	(3/)	1	234	234
Italy	--	38	--	--	--	2	(3/)	40	40
Japan	9	(3/)	3	--	--	22	1	35	35
Netherlands	--	--	(3/)	--	--	4	6	10	10
South Africa	29	--	--	--	--	--	--	29	29
Sweden	--	(3/)	34	4	--	68	--	106	106
United Kingdom	23	37	(3/)	(3/)	--	3	19	81	81
Other	2	--	(3/)	--	--	--	76	79	79
Total	208	132	196	98	--	101	108	843	843

r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total 2/	Total year to date 2/
1996:									
January	447	268	59	685	6	118	391	1,970	1,970
February	529	330	70	613	15	205	291	2,050	4,030
March	331	308	121	631	20	100	170	1,680	5,710
April	651	337	138	441	43	149	648	2,410	8,120
May	508	219	149	792	7	89	242	2,010	10,100
June	531	270	155	676	60	81	168	1,940	12,100
July	335	349	148	628	8	84	451	2,000	14,100
August	540	184	176	619	5	96	183	1,800	15,900
September	274	177	166	622	9	78	176	1,500	17,400
October	602	240	147	600	12	49	394	2,040	19,400
November	485	340	113	725	5	74	276	2,020	21,400
December	478	191	119	971	9	146	129	2,040	23,500
January-December	5,710	3,210	1,560	8,000	199	1,270	3,520	23,500	XX
1997:									
January									
Australia	2	--	5	53	--	(3/)	(3/)	60	60
Belgium	2	(3/)	--	1	--	18	--	21	21
Canada	238	20	16	129	3	36	37	479	479
France	157	114	5	3	(3/)	(3/)	8	287	287
Germany	3	43	1	29	--	(3/)	2	78	78
Ireland	--	(3/)	10	2	--	--	(3/)	12	12
Italy	3	4	1	140	--	3	(3/)	151	151
Japan	28	6	17	70	(3/)	1	28	150	150
Korea, Republic of	(3/)	1	(3/)	112	(3/)	--	3	116	116
Mexico	--	(3/)	18	3	--	5	3	29	29
Netherlands	11	29	(3/)	1	--	(3/)	--	41	41
Singapore	--	13	1	(3/)	(3/)	(3/)	2	16	16
Spain	--	(3/)	1	(3/)	--	(3/)	--	1	1
Sweden	--	--	(3/)	10	6	(3/)	2	18	18
Switzerland	(3/)	4	(3/)	8	--	(3/)	1	13	13
Taiwan	2	9	1	44	--	(3/)	(3/)	56	56
United Kingdom	88	34	27	212	1	16	1	379	379
Other	7	43	12	21	--	12	33	128	128
Total	541	320	115	838	10	91	120	2,040	2,040

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
February 1997:		
Stainless and heat resisting steels	100	(1/)
Alloy steels	100	(1/)
Superalloys	58	42
Copper-nickel alloys	99	1
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer \$/lb.	LME Cash \$/t	LME Cash \$/lb.	18/8 Stainless steel scrap Pittsburgh \$/long ton(gw)
1997:				
Average for month of:				
January	3.220	7,071.545	3.208	730
February	3.585	7,734.525	3.508	810
March	3.647	7,895.868	3.582	900
For week ending:				
January 3	2.96-3.01	6,359.625	2.885	720-740
January 10	3.04-3.31	6,964.100	3.159	720-740
January 17	3.27-3.43	7,173.600	3.254	720-740
January 24	3.35-3.40	7,217.000	3.274	720-740
January 31	3.35-3.44	7,197.400	3.265	720-740
February 7	3.48-3.59	7,611.500	3.453	800-820
February 14	3.58-3.66	7,702.100	3.494	800-820
February 21	3.59-3.63	7,710.600	3.497	800-820
February 28	3.69-3.75	7,913.900	3.590	800-820
March 7	3.72-3.81	8,065.900	3.659	890-910
March 14	3.69-3.79	7,943.300	3.603	890-910
March 21	3.66-3.77	7,882.100	3.575	890-910
March 28	3.54-3.68	7,641.250	3.466	890-910

Sources: Platt's Metals Week and American Metal Market.